Patent Claims

1.   A   method   for   automatically   allocating   an   IP
      address   when   a   new   station   is   connected   in   a
      network,
      characterized in that
      the   new   station   in   the   network   allocates   itself
      its IP address autonomously by virtue of
      the   network   being   monitored   for   at   least   one
      already   allocated   valid   IP   address   in   a   first
      phase (1), and, in a
      second phase (2), an

          (i)   IP address which is different than this
                  already   allocated   IP   number   being
                  generated   automatically,   with   generation
                  involving   the   address   being   altered
                  only   slightly,   preferably   by   altering
                  just   the   last   byte,   while   the   first
                  three bytes are adopted from the already
                  allocated IP address,

          (ii)   the   availability   of   this   generated   IP
                  address   being   checked   by   means   of   a
                  request in the network,

          and,   if   this   generated   IP   address   is   available,
          the   new   station   allocating   it   to   itself   or,   if
          it   is   not   available,   the   generation   of   a   new   IP
          address   (i)   or   the   checking   thereof   (ii)   being
          repeated.

2.   The   method   as   claimed   in   claim   1,   characterized   in
      that   within   the   first   phase   (1)   during   monitoring,
      IP   addresses   at   0.0.0.0   or   255.255.255.255   are
      ignored   and   IP   addresses   in   the   range   from
      169.254.1.0   to   169.254.254.255   are   logged,   and   in
      that   the   second   phase   (2)   is   initiated   when   the
      first   different   and   hence   valid   IP   address   in   the

network has been monitored.

3.   The method as claimed in one of the preceding
     claims, characterized in that the automatically
5   generated IP address either by virtue of the last
     byte being incremented or decremented by a fixed
     value, such as 1, by virtue of the last byte being
     filled with a random number, by virtue of the last
     byte being derived algorithmically from a system
10   constant or by virtue of it being assigned a fixed
     value.

4.   The method as claimed in one of the preceding
     claims, characterized in that the availability of
15   the generated IP address is obtained using an
     address resolution request (address resolution
     protocol request, ARP request) with the generated
     IP address, and by virtue of the generated IP
     address being assumed to be available if there is
20   no response or being assumed to be unavailable if
     a response is received.

5.   The method as claimed in one of the preceding
     claims, characterized in that a check is first
25   carried out to determine whether the network
     contains a server for automatically, possibly
     dynamically, allocating IP addresses, and in that
     if there is such a server the new station assigns
     itself the IP address allocated by this server.
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6.   The method as claimed in one of the preceding
     claims, characterized in that if no valid IP
     address is received in the first phase (1) within
     a characteristic time of, typically, in the range
35   of three minutes then automatic allocation is
     performed using Auto IP, possibly taking into
     account IP addresses in the range from 169.254.0.1

to 169.254.255.254 which have been logged in line with claim 2 and are thus already in use.

7. The method as claimed in one of the preceding claims, characterized in that the new station is a station with an audio output, and in that the finally allocated IP address is output via this audio output.

8. The method as claimed in one of the preceding claims, characterized in that the assignment of the IP address is followed by automatic determination of broadcast address and netmask, the procedure particularly preferably being that the destination address of a monitored broadcast block is adopted as broadcast address.

9. The method as claimed in claim 8, characterized in that the broadcast address is determined by using the first three bytes of the allocated valid IP address from the network to check all possible broadcast addresses from the bottom upward with a query about protocols, such as ping, and the valid broadcast address taken being the first IP address to which all stations in the network which have a lower IP address respond, and by then stipulating the netmask such that all bits above the broadcast component are set to 1 and all bits of the broadcast component are set to 0.

10. The method as claimed in one of the preceding claims, characterized in that after the IP address has been allocated, periodic requests are used to check the network to determine whether the IP address of the new station is still unique, and in that if a further station with the same IP address is found then a free and valid IP address is

sought and allocated by re-entering the second phase (2).

11. The method as claimed in one of the preceding claims, characterized in that at least one network station already integrated in the network executes a program which sends data packets in the form of markers in order to indicate to the new station what network it needs to integrate itself in.

12. The method as claimed in claim 11, characterized in that the markers are data packets of specific and identifiable block length and/or at specific and identifiable time intervals, the network particularly preferably being a cableless network.

13. The method as claimed in either of claims 11 and 12, characterized in that the markers are used to transfer network parameters to the new station directly or indirectly, preferably using coding, in which case the new station particularly preferably has the security and reliability of the data transmission verified using appropriate control mechanisms, and where the new station, following registration thereof in the network, also preferably acknowledges its successful registration to the network station which is already integrated in the network and then the program on the network station which is already integrated in the network is automatically stopped.

14. The method as claimed in one of claims 11-13, characterized in that the markers are sent on the basis of an identification number which is specific to the new station, such as on the basis of its MAC address.

15. The method as claimed in one of claims 11-14, characterized in that the markers are encrypted information, with the key being particularly preferably derived from a specific identification number, such as the MAC address of the new station.

16. A network station for connection to a network comprising at least one communication interface for interchanging data with the network, at least one storage medium and a processor (CPU) which is connected to this interference and to the storage medium, the storage medium containing programs for execution by the processor, characterized in that the storage medium contains a program for carrying out the method as claimed in one of claims 1 to 15, and in that the network station automatically starts this program after connection to a network, provided that it has not yet been activated, and where the network station particularly preferably has an audio output and can output an allocated IP number via this audio output.

17. A computer program for carrying out a method as claimed in one of claims 1 to 15.